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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Industrial Application] this invention -- electromagnetism -- it is related with equipment.

[0002]

[Description of the Prior Art] There are some which were shown in drawing 10 as the 1st conventional example concerning this invention.

[0003] while this conventional example winds a coil -- at least -- both ends -- and the electromagnetism equipped with the spacer 3 for forming a gap between the tips of the core 1 of the pair which forms a closed magnetic circuit, and the core 1 of a pair, while the bobbin 2 which has two or more flange sections 6, and a bobbin 2 are equipped so that a secondary may be divided a primary side -- it is equipment (it is hereafter called a transformer.).

[0004] However, in the above-mentioned 1st conventional example, fall of a spacer 3 etc. will take place in process, and the 1st trouble for which is one also with a thin (several micrometers) spacer 3, and a thin transformer, a thin small transformer, etc. are assembled small [the cross section 4 at the tip of a core 1] that working efficiency worsens will arise.

[0005] There are some which were shown in drawing 11 as a means to solve the 1st trouble of the above. (The 2nd conventional example) This conventional example is the cross section 4 at the tip of a core 1 instead of the spacer 3 of the 1st conventional example shown in drawing 10. A tape 5 is stuck and explanation is omitted by giving the same sign to the same configuration as the other 1st conventional examples.

[0006] However, in the above-mentioned 2nd conventional example, the 2nd trouble that the variation in a gap will occur in case a bobbin 1 is equipped with a core 1, and the variation precision of the inductance of a transformer will fall by the difference in the wearing degree of a tape 5 will arise.

[0007] There are some which were shown in JP,62-266710,A as a means to solve the 2nd trouble of the above, and the front view is shown in drawing 12. (The 3rd conventional example)

This conventional example forms a gap by putting flange section 6b really formed in the center of abbreviation of bobbin 2b by C mold core 1b of a pair.

[0008] Moreover, there are some which were shown in JP,1-2116418,U as a means to solve the 2nd trouble of the above, and the perspective view is shown in drawing 13, and they show a sectional view to drawing 14. (The 4th conventional example) This conventional example forms a gap by equipping bobbin 2c with flange section 6c beforehand, and putting flange section 6c with E mold core 7 of a pair.

[0009] Furthermore, there are some which were shown in JP,56-157033,U as a means to solve the 2nd trouble of the above, and the perspective view is shown in drawing 15. (The 5th conventional example) This conventional example forms a gap by really [2] forming 6d of flange sections in bobbin 2d beforehand, and putting 6d of flange sections by C mold core 1d of an I-beam core and a pair.

[0010]

[Problem(s) to be Solved by the Invention] However, it is very difficult to really form [in / the 5th conventional example] the several micrometers flange section in a bobbin from the above 3rd in the thin

transformer which requires the gap of several micrometers, a small transformer, and a choke coil. Moreover, since the several micrometers flange section is not stabilized in case a coil is coiled around a bobbin, the 3rd trouble that an open circuit of the coil by contact to the flange section and a coil etc. takes place will arise.

[0011] the electromagnetism [the variation in an inductance is small and] which can be improved in assembly working efficiency while the place which this invention was made in view of the trouble of all above, and is made into the purpose consists of a core, a bobbin, and 3 individual objects of a spacer -- it is offering equipment.

[0012]

[Means for Solving the Problem] In order to solve the above-mentioned trouble, while winding a coil according to invention according to claim 1 While the bobbin which has the flange section which divides a secondary a primary [at least] side, and a bobbin are equipped the electromagnetism equipped with the spacer for forming a gap between the tips of the core of the pair which forms a closed magnetic circuit, and the core of a pair -- it is characterized by preparing the slit for spacer insertion in one of the flange sections in equipment.

[0013] According to invention according to claim 2, a spacer is characterized by being what insulates a secondary a primary side.

[0014] According to invention according to claim 3, a spacer is characterized by being what insulates a coil and a core.

[0015] According to invention according to claim 4, a spacer is characterized by really being formed in the case for coil protection which protects a coil from the exterior.

[0016]

[Function] According to invention according to claim 1, the slit for spacer insertion of two or more flange sections to one is prepared, the end of a spacer is inserted in a slit, and a gap is formed between the tips of the core of a pair.

[0017] According to invention according to claim 2, the slit for spacer insertion is prepared in the flange section which divides a secondary a primary side, the end of a spacer is inserted in a slit, and a gap is formed between the tips of the core of a pair.

[0018] While according to invention according to claim 3 inserting the end of a spacer in a slit and forming a gap between the tips of the core of a pair, the other end of a spacer is arranged between a coil and a core.

[0019] It is a wrap so that a coil may be protected from the exterior in the case for coil protection, while according to invention according to claim 4 inserting in a slit the end of the spacer really formed in the case for coil protection and forming a gap between the tips of the core of a pair.

[0020]

[Example]

(Example 1) The 1st example concerning this invention is shown in drawing 1 .

[0021] A different point from the 1st conventional example shown in drawing 10 forms the slit 8 which can insert a spacer 3 in one of two or more flange sections 6, as shown in drawing 2 , it assembles a transformer, and it omits explanation by attaching the same sign in the same configuration as the other 1st conventional examples.

[0022] Moreover, if the flange section 6 which forms a slit 8 is except the flange section prepared in the both ends of a bobbin, it is good anything.

[0023] (Example 2) The 2nd example concerning this invention is shown in drawing 3 R> 3.

[0024] A different point from the 1st example shown in drawing 1 forms a slit 8 in the flange section 6 divided into a secondary n2 the primary side n1, is having insulated the secondary n2 the primary side n1, and omits explanation by attaching the same sign in the same configuration as the other 1st examples.

[0025] Here, if the character type spacer 3 of KO is formed as shown in drawing 4 , the insulation with a secondary n2 can be more certainly aimed at the primary side n1 with a spacer 3.

[0026] (Example 3) The 3rd example concerning this invention is shown in drawing 5 R> 5.

[0027] A different point from the 2nd example shown in drawing 3 inserts two or more other ends of a spacer 3 in a slit 8, respectively, is having insulated the secondary coil m2 and the core 1 of each other, and omits explanation by giving the same sign to the same configuration as the other 2nd examples while it forms two or more slits 8 in a bobbin 2 and forms a gap by the end of a spacer 3.

[0028] (Example 4) The 4th example concerning this invention is shown in drawing 6 R> 6 and drawing 7.

[0029] The case 10 for coil protection protected from the exterior while a different point from the 3rd example shown in drawing 5 really forms the spacer 3 as shown in drawing 7 R> 7 is established. As shown in drawing 6 (a), while insulating the secondary coil m2 and the core 1 of each other and protecting the secondary coil m2 from the exterior, it is having inserted the spacer 3 in the slit 8, and explanation is omitted by giving the same sign to the same configuration as the other 3rd examples.

[0030] In addition, that from which what can protect the primary coil m1 can protect the primary coil m1 and the secondary coil m2 is [in / this example] sufficient as the case 10 for coil protection. Moreover, you may make it the rear face of the field in which the case 10 for coil protection was formed in a transformer protect from the exterior by the printed circuit board 11 for arranging a transformer etc., as shown in drawing 6 (b).

[0031] Moreover, that with which what can insulate the primary coil m1 and the core 1 of each other can insulate the primary coil m1 and the secondary coil m2, and the core 1 of each other is [in / the 3rd and 4th example of the above] sufficient as a spacer 3.

[0032] And when equipping a bobbin 2 with a core 1 and assembling a transformer by [which were shown in the example of all above] having constituted like, it is in process, and since a spacer 3 is held to a slit 8, the working efficiency of an assembly improves. In addition, as long as a slit 8 can insert and hold a spacer 3, other configurations are sufficient as it also in the configuration which cut a part of flange section 6 as shown, for example in drawing 8 deeply, or the configuration which divides the flange section 6 as shown in drawing 9 into two.

[0033]

[Effect of the Invention] the electromagnetism [the variation in an inductance is small and] which can be improved in assembly working efficiency while consisting of a core, a bobbin, and 3 individual objects of a spacer according to invention according to claim 1 -- equipment can be offered.

[0034] the electromagnetism which a secondary can insulate easily a primary side, and the variation in an inductance is small and can be improved in assembly working efficiency while consisting of a core, a bobbin, and 3 individual objects of a spacer according to invention according to claim 2 -- equipment can be offered.

[0035] the electromagnetism which a coil and a core can insulate easily, and the variation in an inductance is small and can be improved in assembly working efficiency while consisting of a core, a bobbin, and 3 individual objects of a spacer according to invention according to claim 3 -- equipment can be offered.

[0036] the electromagnetism which a coil and a core can insulate easily and can protect a coil, and the variation in an inductance is small and can be improved in assembly working efficiency while consisting of a core, a bobbin, and 3 individual objects of a spacer according to invention according to claim 4 -- equipment can be offered.

[Translation done.]